APPENDIX

Table 1. J1 Definition, Thermistors & Personality Pins

Connector	Pin	Mode	Type / Load	Function
J1	1	Input	Analog 0-5V	Thermistor Input [FF1]
J1	2	Input	Analog 0-5V	Thermistor Input [FF2]
J1	3	Input	Analog 0-5V	Thermistor Input [FZ]
J1	4	Input	Analog 0-5V	Thermistor Input [EVAP]
J1	5	Input	Analog 0-5V	Thermistor Input [Pan]
J1	6	Input	Digital 0-5V	Personality Input
J1	7	Input	Digital 0-5V	Personality Input
J1	8	Output	5V Power supply	Reference for Thermistors
J1	9	NC	NC	NC

Table 2. J2 Definition, Fan Control

Connector	Pin	Mode	Type / Load	Function
J2	1	Input	Digital 0-12V	RPM Input [Evap]
J2	2	Input	Digital 0-12V	RPM Input [Cond]
J2	3	Power	Digital 0V – Hi Z / 850 mA	Motor Common [Evap & Cond]
J2	4	Output	Analog 0-12V / 425 mA	Fan Drive Voltage [Evap]
J2	5	Output	Analog 0-12V / 425 mA	Fan Drive Voltage [Cond]
J2	6	Output	Digital 0V – Hi Z / 200 mA	Low Active Fan Ouptut [FF]
J2	7	Output	Digital 0V – Hi Z / 200 mA	Low Active Fan Ouptut [Pan]
J2	8	Power	12V Power supply / 400 mA	Power For Low Active Fans [FF & Pan]

Table 3. J3 Definition, Encoders and Mullion Damper

Connector	Pin	Mode	Type / Load	Function
J3	1	Output	Digital 0-12V / 60 mA	Stepper Motor Coil (normally opposite polarity of pin 2)
J3	2	Output	Digital 0-12V / 60 mA	Stepper Motor Coil (normally opposite polarity

Table 3. continued

Connector	Pin	Mode	Type / Load	Function
				of pin 1)
J3	3	Output	Digital 0-12V / 60 mA	Stepper Motor Coil (normally opposite polarity of pin 4)
J3	4	Output	Digital 0-12V / 60 mA	Stepper Motor Coil (normally opposite polarity of pin 3)
J3	5	Input	Digital 0-5V	Encoder Drive [FF]
J3	6	Input	Digital 0-5V	Encoder Drive [FZ]
J3	7	Output	Digital 0-5V	Encoder Input [Bit 3]
J3	8	Output	Digital 0-5V	Encoder Input [Bit 2]
J3	9	Output	Digital 0-5V	Encoder Input [Bit 1]
J3	10	Output	Digital 0-5V	Encoder Input [Bit 0]

Table 4. J4 Definition, Communications

Connector	Pin	Mode	Type / Load	Function
J4	1	Input / Output	Digital 0-5V	Serial Communication Stream
J4	2	Output	12V Power supply / 1.25 A	Power for Temperature Control and Dispenser Boards
J4	3	Output	DC Common / 1.25 A	DC Common (Not connected to earth ground)
J4	4	Input	Digital 0-12V	Dumb Dispenser Status Input
J4	5	Input	Digital 0-12V	Dumb Dispenser Status Input

Table 5. J5 Definition, Pan Damper Control

Connector	Pin	Mode	Type	Function
J5	1	Output	Digital 0-12V / 300 mA	Damper Drive Opposite of Pin 2
J5	2	Output	Digital 0-12V / 300 mA	Damper Drive Opposite of Pin 1
J5	3	Output	Digital 0-12V / 300 mA	Damper Drive Opposite of Pin 4
J5	4	Output	Digital 0-12V / 300 mA	Damper Drive Opposite of Pin 3

Table 6. J6 Definition, Flash Programming

Connector	Pin	Mode	Type	Function
J6	1	Output	5 Volt Power Supply	Power Supply Output
J6	2	Output	DC Common	DC Common (Not connected to earth ground)
J6	3	Input	Digital 0-5V	Serial Data Received
J6	4	Output	Digital 0-5V	Serial Data Transmitted
J6	5	NC	NC	NC
J6	6	NC	NC	NC
J6	7	Input	12 Volt Power Input	VFPP
J6	8	Input	Digital 0-5V	Test Pin
J6	9	Input	Digital 0-5V	P19
J6	10	Input	Digital 0-5V	Reset
J6	11	NC	NC	NC
J6	12	NC	NC	NC
J6	13	Output	DC Common	DC Common (Not connected to earth ground)
J6	14	Input	DC Common	DC Common to Select Programming Mode

Table 7. J7 Definition, AC Loads

Connector	Pin	Mode	Type / Load	Function
J7	1	Output	117VAC Line / 4 A	Auger Drive Relay Connects to Pin 4 of This Connector
J7	2	Output	117VAC Line / 0.3 A	Crusher Drive
J7	3	Output	117VAC Line / 0.5 A	Water Valve Drive
J7	4	Input	117VAC Line / 4.3 A	Auger Drive Relay Connects to Pin 1 of This Connector
J7	5	Output	117VAC Line / 200 mA	Thaw Heater Power
J7	6	Input	117VAC Line	Fresh Food Door
J7	7	Input	117VAC Line	Freezer Door
J7	8	NC	NC	NC
J7	9	Input	117VAC Neutral	Return for Door Detection Circuits

Table 8. J8 Definition, Compressor Run

Connector	Pin	Mode	Type / Load	Function
J8	1	Output	117VAC Line / 3 A	Compressor Run Relay

Table 9. J9 Definition, Defrost

Connector	Pin	Mode	Type / Load	Function
J9	1	Output	117VAC Line / 6.4 A	Defrost Run Relay

Table 10. J11 Definition, Line Input

Connector	Pin	Mode	Type	Function
J11	1	Input	117VAC Line	Line Input

Table 11. J12 Definition, Pan Heater

Connector	Pin	Mode	Type	Function
J12	1	Output	117VAC Line / 0.5 A	Pan Heater Relay Output

Table 12 Set Points Associated With Various LEDs

PLATFORM	Leap Frog		BPO		Quantum	
LED	Fresh Food (Degrees F)	Freezer (Degrees F)	Fresh Food (Degrees F)	Freezer (Degrees F)	Fresh Food (Degrees F)	Freezer (Degrees F)
0	Off	Off	Off	Off	Off	Off
1 – Warmest	45	6	46	6	45	6
2	40	4	41	4	40	4
3	39	3	39	3	39	3
4	38	1	38	1	38	1
5	37	0	37	0	37	0
6	36	-1	36	-1	36	-1
7	35	-3	35	-1	35	-3
8	35	-4	35	-4	35	-4
9- Coldest	34	-6	34	-6	34	-6

Table 13 Diagnostic Key Sequences

FZ Display	FF Display	Mode	Comment
0	1	HMI to Main Control Communications	The Turbo Cool LED will light up confirming communication between the two boards.
0	2	HMI to Dispenser Communications	The Turbo Cool LED will light up confirming communication between the two boards.
0	3	Dispenser to Main Control Communications	The Turbo Cool LED will light up confirming communication between the two boards.
0	4	Encoder Test	As the encoders are rotated, the test mode will stop flashing and the corresponding setting of the encoder will appear on the freezer display of the HMI.
0	5	HMI Self Test	See below
0	6	Control and Sensor System Self Test	See below
0	7	Open Duct Door	Duct Door will open for 10 seconds and then close
0	8	Sweat Heater Test	Turn the sweat heater on for 60 seconds
0	9	Open Dampers	Each Damper will open, pause briefly, and then close
1	0	Fan Speed Test	Each fan will run for 30 seconds at low speed, then for 30 seconds at medium speed, and finally for 30 seconds at high speed.
1	1	100% Run Time	This mode runs the sealed system 100% of the time. This will automatically time out after 1 hour of run time.
1	2	Enter Prechill	This places the freezer in prechill mode. It will return to normal operation on its own.
1	3	Enter Defrost	This will set the refrigerator into defrost mode. It will return to normal operation on its own. If the cavity is not cold when this mode is executed, it may execute extremely fast.
1	4	Refrig	Causes a system reset.
1	5	Test Mode Exit	Causes a temperature board reset

Table 14

Device	Detection	Strategy
FZ Thermistor	• FZ Thermistor Circuit OPEN	• Set FZ unfiltered temp = -40, ensuring unigrid bottom row (X,W,V,U,T,S) execution. • EFOSSO disabled.
FF1 or FF2 Thermistor (Quantum)	• FFx Thermistor Circuit OPEN	• Quantum only - Disregard out of range FFx temp. In the FF avg. temp. calculation.
FF1 and FF2 Thermistor (or BPO, Leap single FF thermistor)	• FF1 Thermistor Circuit OPEN, AND • FF2 Thermistor Circuit OPEN	• Set FF no freeze < FF avg. unfiltered temp < FF low hysteresis, ensuring unigrid (E,K,Q,W) column execution.
Damper Operation	• Damper commanded open, but FF avg temperature increases > 0.3F in 5 min. • Damper commanded closed, but FF avg temperature decreases > 0.3F in 5 min.	• Send appropriate command again to damper (open/close)
Evap. Thermistor	• Evap. Thermistor Circuit OPEN	• Defrost operation occurs as follows: defrost duration of 20 minutes, dwell duration of 5 minutes, and 8 hours of compressor run time elapses between defrosts.
Evap. Fan	• No RPM feedback	• Operate evaporator fan at 100% duty cycle.
Power Line Fault	• None	• Store defrost state and defrost timer status every 30 minutes or upon defrost state change. • Algorithm uses saved state and timer values if FZ temp < Defrost termination temp. • Algorithm reinitializes state and timer values if FZ temp >= Defrost termination temp.

Table 15 Control Board Commands

Add-ress	Com. Byte	Command Received	Communication Response	Physical Response
0x10	0x01	Firmware Version	<3 byte ascii version>	
0x10	0x61	Monogram Pan Heater Control		On if Data = 0x51 and Off if Data = 0x41
0x10	0x62	Feature Pan Damper 1 Control		On if Data = 0x51 and Off if Data = 0x41
0x10	0x63	Feature Pan Damper 2 Control		On if Data = 0x51 and Off if Data = 0x41
0x10	0x64	Feature Pan Heater Control		On if Data = 0x51 and Off if Data = 0x41
0x10	0x65	Damper Control		Open if Data = 0x51 and Close if Data = 0x41

Add-ress	Com. Byte	Command Received	Communication Response	Physical Response
0x10	0x66	Start/Stop Condenser Fan		0x41=Off, 0x51=On
0x10	0x67	Start/Stop Evaporator Fan (Variable Speed)		0x00=Off, 0x01=Low, 0x02=Med, 0x03=High
0x10	0x68	Start/Stop Fresh Food Fan (Variable Speed)		0x00=Off, 0x01=Low, 0x02=High
0x10	0x69	Start/Stop Turbo Mode		Start If Data = 0x51 and Stop If Data = 0x41
0x10	0x6A	Start/Stop Feature Pan Fan (Variable Speed)		Chill Pan Fan Starts With Data Value Setting Speed
0x10	0x6B	Condenser Fan Speed Request	1 Bytes 0x51=On, 0x41=Off	
0x10	0x6C	Evaporator Fan Speed Request	2 Bytes For Logical: 0=Off, 1=Low, 2=Med, 3=High	0x41=Logical State, 0x51=RPM
0x10	0x6D	Fresh Food Fan Speed Request	1 Byte 0=Off, 1=Low, 2=High	
0x10	0x6E	Feature Pan Fan Speed Request	1 Byte 0x51=On, 0x41=Off	
0x10	0x70	Dispense		One Data Byte with masks for each selection Water = 0x01 Cubed =0x02 Crushed = 0x04
0x10	0x71	Engage Water Valve		Engage If Data = 0x51 and Release If Data = 0x41
0x10	0x72	Energize Defrost Heater		Energize If Data = 0x51 and Release If Data = 0x41
0x10	0x73	Energize Auger Motor		Energize If Data = 0x51 and Release If Data = 0x41
0x10	0x74	Start Compressor		Start If Data = 0x51 and Stop If Data = 0x41
0x10	0x75	Energize Crusher Bypass Solenoid		Energize If Data = 0x51 and Release If Data = 0x41
0x10	0x76	Read Sealed System ON Time	2 Bytes <Minutes of ON Time>	

A-7

Add-ress	Com. Byte	Command Received	Communication Response	Physical Response
0x10	0x77	Read Sealed System OFF Time	2 Bytes <Minutes of OFF Time>	
0x10	0x80	Read FF Thermistor 1	2 Bytes Temp X 100 or the A/D Counts	0x41 = Inst. Value 0x51 = Filtered 0x61=Unamp. 0x71=A/D Counts
0x10	0x81	Read FF Thermistor 2	2 Bytes Temp X 100 or the A/D Counts	0x41 = Inst. Value 0x51 = Filtered 0x61=Unamp. 0x71=A/D Counts
0x10	0x82	Read FZ Thermistor	2 Bytes Temp X 100 or the A/D Counts	0x41 = Inst. Value 0x51 = Filtered 0x61=Unamp. 0x71=A/D Counts
0x10	0x83	Read Evaporator Thermistor	2 Bytes Temp X 100 or the A/D Counts	0x41 = Inst. Value 0x51 = Filtered 0x61=Unamp. 0x71=A/D Counts
0x10	0x84	Read Feature Pan Thermistor	2 Bytes Temp X 100 or the A/D Counts	0x41 = Inst. Value 0x51 = Filtered 0x61=Unamp. 0x71=A/D Counts
0x10	0x85	Read Ambient Thermistor	2 Bytes Temp X 100 or the A/D Counts	0x41 = Inst. Value 0x51 = Filtered 0x71=A/D Counts
0x10	0x86	Get Number of Door Openings	4 Bytes: FZ MSB, FZ LSB, FF MSB, FF LSB	
0x10	0x87	Reset Door Openings Counter		
0x10	0x88	Read Sensors	<State of Various Sensors –> 1 byte>	
0x10	0x89	Read Dispense Counters	6 Bytes: Water MSB, Water LSB, Cubed MSB, Cubed LSB, Crushed MSB, Crushed LSB	
0x10	0x8A	Enter Feature Pan Defrost Mode		0 = Off 1 = Small Pkg. 2 = Med. Pkg. 3 = Lg. Pkg.
0x10	0x8B	Enter Feature Pan Quick Chill Mode		0 = Off 1 = 15 min. 2 = 30 min. 3 = 45 min.
0x10	0x8C	Reset Dispense Counters		
0x10	0x90	Reset Freshness Filter Timer		
0x10	0x91	Reset Water Filter Timer		

Table 15 continued

Address	Com. Byte	Command Received	Communication Response	Physical Response
0x10	0xA0	Set EEPROM Read Address		Memory pointer is set for next Diagnostic eeprom read sequence.
0x10	0xA1	Set EEPROM Read Length		Memory read length is set for next Diagnostic eeprom read sequence.
0x10	0xA2	Read EEPROM	<EEPROM Data defined by previous two commands>	
0x10	0xA3	Write EEPROM		First two data bytes define the eeprom address, bytes three and four are the data written to that 16 bit area.
0x10	0xA4	Read Set Points	<Set Point Temperatures from EEPROM (First Byte is FF, Second Byte is FZ)>	
0x10	0xA5	Write Set Points		Send Set Points to EEPROM (First Byte is FF, Second Byte is FZ)
0x10	0xB0	Check Refrigerator Status	<State of Refrigerator>	
0x10	0xB1	Perform FF Fan Diagnostics	1 = Fan OK 2 = Fan Missing or Open 3 = Fan Shorted 4 = Fan Stalled	
0x10	0xB2	Perform Evap Fan Diagnostics	1 = Fan OK 2 = Fan Missing or Open 3 = Fan Shorted 4 = Fan Stalled 5 = Blade Missing	
0x10	0xB3	Perform Cond Fan Diagnostics	1 = Fan OK 2 = Fan Missing or Open 3 = Fan Shorted 4 = Fan Stalled	
0x10	0xB4	Perform Feature Fan Diagnostics	1 = Fan OK 2 = Fan Missing or Open 3 = Fan Shorted 4 = Fan Stalled	
0x10	0xB5	Status of Outputs	2 Bytes <Status of digital I/O>	

A-9

Address	Com. Byte	Command Received	Communication Response	Physical Response
0x10	0xBA	Get Encoder Settings	2 Bytes: FF Setting, FZ Setting	
0x10	0xBC	Get Model Inputs	1 Byte with value of model inputs	
0x10	0xC0	Enter Diagnostic Mode		All outputs are off or closed
0x10	0xC1	Exit Diagnostic Mode		Will reset refrigerator
0x10	0xF9	Forced Reset		
0x10	0xFA	Forced Prechill		
0x10	0xFB	Forced Defrost		
0x10	0xFC	100% Run		
0x10	0xFD	Disable defrost		
0x10	0xFE	Calibrate thermistor channels against known resistance		

Table 16

Bit 128	Bit 64	Bit 32	Bit 16	Bit 4	Bit 2	Bit 2	Bit 1
0	0	FF Door	FZ Door	0	0	0	0

Table 17

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	FF Door Sensr	FZ Door Sensr	Water Disp. Valve State	Auger State	State of Compress	Crush Sol. State	Mongr. Heater	Defrst Heatr State
1	Damp. State	Feat. Pan Damp. 1 State	Feat. Pan Damp. 2 State	Feat. Pan Heatr.	Feat. Pan Fan	Cond Fan	FF Fan	0
2	FF1 Temp MSB							
3	FF1 Temp LSB							
4	FF2 Temp MSB							
5	FF2 Temp LSB							
6	FF Average Temp MSB							
7	FF Average Temp LSB							
8	FZ Temp MSB							
9	FZ Temp LSB							
10	Evap Temp MSB							
11	Evap Temp LSB							
12	Feature Pan Temp MSB							
13	Feature Pan Temp LSB							
14	Evap Fan Speed (0=Off, 1=Low, 2=Med, 3=High)							

A-10

Table 18

Add-Ress	Com. Byte	Command Received	Communication Response	Physical Response
0x11	0x01	Firmw̶ ̶ersion	<3 byte ascii version>	
0x11	0x6F	EEPROM data from mainboard		
0x11	0x90	Set Display		See table below
0x11	0x91	Read Buttons	<State of Various Buttons —> 4 bytes>	
0x11	0x92	Pulse Beeper		
0x11	0xA4	Reply from main with temperature settings		
0x11	0xBA	Reply from main with encoder settings		
0x11	0xC0	Door Open		0x51 = door open 0x41 = door closed
0x11	0xF2	Temperature to main/dispenser communications test		
0x11	0xF3	Dispenser to main communications test		
0x11	0xF4	Open duct door		
0x11	0xF5	Sweat heater test		
0x11	0xF6	Sensor system self-test		
0x11	0xF9	Forced reset		

Table 19

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Thaw 1	Cool	Lock	Filter	Door	Cube	Crush	Water
1	0	0	0	Chill 3	Chill 2	Chill 1	Thaw 3	Thaw 2
2	Bits 0 – 6 , Fresh Food LED 0							
3	Bits 0 – 6, Fresh Food LED 1							
4	Bits 0 – 6, Fresh Food LED 2							
5	Bits 0 – 6, Freezer LED 0							
6	Bits 0 – 6, Freezer LED 1							
7	Bits 0 – 6, Freezer LED 2							

Table 20

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Lock	Reset Fresh Filter	Fresh Food Dec	Fresh Food Inc	Freezer Dec	Freezer Inc	Defrost / Chill	Turbo Cool
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	Door	Thaw	Light	Cube Key	Water Key	Crush Key

Table c

Add-Ress	Com. Byte	Command Received	Communication Response	Physical Response
0x12	0x01	Fir████e Version	<3 byte ascii version>	
0x12	0x6F	EEPROM data from mainboard		
0x12	0x90	Set Display		See table below
0x12	0x91	Read Buttons	<State of Various Buttons —> 4 bytes>	
0x12	0x92	Pulse Beeper		
0x12	0xA4	Reply from main with temperature settings		
0x12	0xBA	Reply from main with encoder settings		
0x12	0xC0	Door Open		0x51 = door open 0x41 = door closed
0x12	0xF2	Temperature to main/dispenser communications test		
0x12	0xF3	Dispenser to main communications test		
0x12	0xF4	Open duct door		
0x12	0xF5	Sweat heater test		
0x12	0xF6	Sensor system self-test		
0x12	0xF9	Forced reset		

Table 22

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Thaw 1	Cool	Lock	Filter	Door	Cube	Crush	Water
1	0	0	0	Chill 3	Chill 2	Chill 1	Thaw 3	Thaw 2
2	Bits 0 – 6 , Fresh Food LED 0							

Table 23

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
3	Bits 0 – 6, Fresh Food LED 1							
4	Bits 0 – 6, Fresh Food LED 2							
5	Bits 0 – 6, Freezer LED 0							
6	Bits 0 – 6, Freezer LED 1							
7	Bits 0 – 6, Freezer LED 2							

Table 24

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Lock	Reset Fresh Filter	Fresh Food Dec	Fresh Food Inc	Freezer Dec	Freezer Inc	Defrost / Chill	Turbo Cool
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	Door	Thaw	Light	Cube Key	Water Key	Crush Key

Table 25

Data Name (Module/Data)	Length	Type	Function
All Modules / State Code	1	Char	R = Run I = Initialization
Command Processor / Command	1	Structure Pointer	Points to String Where Byte 1 = Command, Byte 2 = Address, Successive Bytes Data
Command Processor / Command (Note: for received commands)	1	Structure Pointer	Points to String Where Byte 1 = Command, Byte 2 = Address, Successive Bytes Data
Dispense / Command	1	Unsigned Char	Bit 0 = Main Valve, Bit 1 = Water Valve, Bit 2 = Electromagnet, Bit 3 = Auger, Bit 4 = Crusher Sol.
Protocol Data Parse / Clr OK	1	Boolean	True Means Clear Buffer False Means Do Not Clear Buffer
Protocol Data Parse / Command & Rstatus	1	Structure Pointer	Points to String Where Boolean = Rstatus (True if command received and CS OK) Byte 1 = Command, Byte 2 = Address, Successive Bytes Data
Protocol Data XMIT / XMIT Status	1	Boolean	True if last command was successfully transmitted. False if last command did not transmit or is still transmitting.

Table 25 continued

Data Name (Module/Data)	Length	Type	Function
Protocol Data XMIT / Command	1	String Pointer	Points to String Where Byte 1 = Command, Byte 2 = Address, Successive Bytes Data. NOTE: If pointer is NULL, then XMIT Status is returned based on the success or failure of the previous command.
LED Control / LED Pattern	1	Unsigned Long	Each of the 32 bits corresponds to an LED.
Keyboard Scan / Key Status & Key Value	1	Unsigned Int.	MSB = Key Status (1=key pressed) Each of the bits beginning with the LSB correspond to a key. If no key is being pressed the contents of the status will reflect the last key combination pressed.
Protocol Packet Ready / Rstatus	1	Boolean	True if command received and CS OK Else it returns False
Physical Xmit Char / Char	1	Unsigned Char	Contains character to be transmitted
Physical Xmit Char / XMIT Status	1	Boolean	True if last command was successfully transmitted. False if last command did not transmit or is still transmitting.
Xmit Port Avail / xPort Status	1	Boolean	True if port is available. False if port is not available.
Key Pressed / Key Status	1	Boolean	True if key is pressed. False if key is not pressed.

DayCount	4 Bytes – Counts Days for both Filter Functions
OneMinute	1 Byte – Set to 60 when initialized. A●●ne minute has passed.
RXBuffer	16 Bytes – Buffer used to store comm●●tion data
Turbo Timer	Unsigned Int – Contains the number of minutes remaining until Turbo Mode times out.
Chill Timer	Unsigned Int – Contains the number of minutes remaining until Quick Chill Mode times out.
Daily Rollover	Unsigned Int – Counts minutes each day

Table 27

Data Name	Length	Type	Function
All Modules / State Code	1	Char	R = Run I = Initialization D = Diagnostics
Protocol Data Parse / Clr OK	1	Boolean	True Means Clear Buffer False Means Do Not Clear Buffer
Protocol Data Parse / Command & Rstatus	1	Structure Pointer	Points to String Where Boolean = Rstatus (True if command received and CS OK) Byte 1 = Command, Byte 2 = Address, Successive Bytes Data
Protocol Data XMIT / XMIT Status	1	Boolean	True if last command was successfully transmitted. False if last command did not transmit or is still transmitting.
Protocol Data XMIT / Command	1	String Pointer	Points to String Where Byte 1 = Command, Byte 2 = Address, Successive Bytes Data. NOTE: If pointer is NULL, then XMIT Status is returned based on the success or failure of the previous command.
Apply Calibration Constants & Linearize / Sensor #	1	Unsigned Char	Sensor Number range 1-255
Apply Calibration Constants & Linearize / Value	1	signed Int	Temperature in degrees Fahrenheit Times 100 Range –12700 to +12800.
Read Sensor / Sensor #	1	Unsigned Char	Sensor Number range 1-255
Read Sensor / A/D Cnts	1	Int	A/D Counts for selected sensor.

A- 15